

38 How is oxygen and carbon dioxide transported in human beings?

Ans ~~oxygen and carbon dioxide~~ Haemoglobin transports oxygen molecules to all the body cells for cellular respiration. The haemoglobin pigment present in the blood gets attached to four O_2 molecules that are obtained from breathing. It thus forms oxyhaemoglobin and the blood ~~becomes~~ becomes oxygenated. This oxygenated blood is then distributed to all the body cells by the heart. After giving away O_2 to the body cells, blood takes away CO_2 which is the end product of cellular respiration. Now the blood becomes de-oxygenated, since haemoglobin pigment has less affinity for CO_2 , CO_2 is mainly transported in the dissolved form. This de-oxygenated blood gives CO_2 to lung alveoli and takes O_2 in return.

40 What are the different ways in which glucose is oxidized to provide energy in various organisms?

Ans Glucose is oxidised in two ways to provide energy.

(a) Aerobic Respiration: Glucose is completely oxidised to CO_2 & H_2O in the presence of O_2 , with the release of considerable amount of energy. This type of oxidation occurs in most of the living organisms such as human beings, birds, snakes, frog, fish etc.

a) ribs are lifted up and diaphragm is flattened. The air that is sucked into the lungs fills the numerous alveoli present in the lungs. Each lung contains 300-350 million alveoli. These numerous alveoli increase the surface area for gaseous exchange making the process of respiration more efficient.

Q2 How are lungs designed in human beings to maximize the area for the exchange of gases?

Ans Within the lungs, the air passage divides into smaller and smaller tubes which finally terminate in a balloon like structure called alveoli. The alveoli provide a surface where the exchange of gases can take place. The two lungs together have about 300-500 million alveoli. The walls of the alveoli are supplied with an extensive network of blood vessels. So lungs maximize the area for gaseous exchange through the presence of large number of alveoli which are richly supplied with blood.

5^o What advantage over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration?

Ans =
Terrestrial organism obtain oxygen for respiration from the atmosphere where the oxygen ~~content~~ content is high, whereas, aquatic organisms obtain oxygen dissolved in the water which is very low when compared to the amount in atmosphere. For this reason, aquatic animals breathe faster to obtain as much oxygen as possible, on the other hand, terrestrial animal does not have to breathe faster and thus spend less energy than aquatic organism.

6^o Why is the trachea provided with cartilaginous rings?

Ans =
The cartilage rings are present in the trachea to prevent it from collapsing. This enables the lumen of the trachea to stay open during breathing.